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# Studies of New Zealand Hepaticae. 20–38. A Miscellanea of New Taxa and Combinations

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**ABSTRACT.** The following new infrageneric taxa are described: *Bazzania* S. Gray sect. *Glaucobazzania* J. J. Engel (Lepidoziaceae) and *Cephalozia* (Dumortier) Dumortier subg. *Eocephalozia* R. M. Schuster ex J. J. Engel (Cephaloziaceae). *Solenostoma cryptogynum* R. M. Schuster ex J. J. Engel (Jungermanniaceae), *C. austrigena* R. M. Schuster ex J. J. Engel, *C. schusteriana* J. J. Engel, *C. pachygyna* R. M. Schuster ex J. J. Engel (Cephaloziaceae), *Cephaloziella pseudo-crassigyna* R. M. Schuster ex J. J. Engel (Cephaloziaceae), and *Hyalolepidozia microphylla* R. M. Schuster ex J. J. Engel (Lepidoziaceae) are new species. *Kurzia helophila* R. M. Schuster var. *flaccida* R. M. Schuster ex J. J. Engel and *Allisoniella nigra* (Rodway) R. M. Schuster var. *acutiloba* J. J. Engel are new varieties. *Lophozia monoica* (Hodgson) J. J. Engel, *Andrewsianthus hodgsoniae* (R. M. Schuster) R. M. Schuster ex J. J. Engel, *A. scabrellus* (C. Massalongo) R. M. Schuster ex J. J. Engel, *A. sphenoloboides* (R. M. Schuster) R. M. Schuster ex J. J. Engel, *Solenostoma hodgsoniae* (Grolle) J. J. Engel, *S. rufiflorum* (Colenso) J. J. Engel, *Pseudomarsupidium aureocinctum* (R. M. Schuster) J. J. Engel, *P. crossii* (Spruce) J. J. Engel, and *Cephaloziella varians* (Gottsche) Stephani var. *subantarctica* (R. M. Schuster) R. M. Schuster ex J. J. Engel are new combinations.

**Key words:** *Andrewsianthus*, Hepaticae, *Hyalolepidozia*, IUCN Red List, New Zealand, *Pseudomarsupidium*, *Solenostoma*.

A number of new taxa and combinations in the Hepaticae have surfaced during preparation of the first volume of *A Flora of the Liverworts and Hornworts of New Zealand* (Engel & Glenny, in press). These are published here so that they may be made immediately available for use, and their taxonomic numbering corresponds to presentation in earlier papers in this series (Engel & Schuster, 1988, 1994; Engel & Smith Merrill, 1994, 1996). All of the new taxa and combinations, except those in *Andrewsianthus* R. M. Schuster and *Pseudomarsupidium* Herzog, are restricted to New Zealand. *Andrewsianthus scabrellus* (C. Massalongo) R. M. Schuster ex J. J. Engel and *A. sphenoloboides* (R. M. Schuster) R. M. Schuster ex J. J.

Engel occur in southern South America, *Pseudomarsupidium aureocinctum* (R. M. Schuster) J. J. Engel is endemic to Venezuela, and *P. crossii* (Spruce) J. J. Engel is known only from Colombia and Venezuela. The new species in this contribution are all designated as DD (Data Deficient) according to IUCN Red List criteria (IUCN, 2001).

## LEPIDOZIACEAE LIMPRICHT

**20. *Bazzania*** Gray sect. ***Glaucobazzania*** J. J. Engel, sect. nov. TYPE: *Bazzania tayloriana* (Mitten) Kuntze.

Superficies folii glauca, dense leviterque punctatoglandularis, in statu madido hebes lactea opaca.

Plants with leaf surface glaucous, densely and finely punctate-granular, dull, milky and opaque when moist.

To my knowledge, the section contains only the type species, *Bazzania tayloriana*, of New Zealand.

**21. *Hyalolepidozia microphylla*** R. M. Schuster ex J. J. Engel, sp. nov. TYPE: New Zealand. South Island: Fiordland, Hunter Mtns., Mt. Burns, 4500–5000 ft., R. M. Schuster 84-101b (holotype, Hb. Schuster not seen).

*Hyalolepidoziae bicuspidatae* (C. Massalongo) S. W. Arnell ex Grolle similis, sed lobis folii in cellulam unicam terminantibus, foliis sporadice 3-lobis, pariete capsulae bistratose, statu sexuali dioico differt.

Plants are similar to *Hyalolepidozia bicuspidata* (C. Massalongo) S. W. Arnell ex Grolle, but differ in leaf lobes terminating in a single cell, leaves sporadically 3-lobed, the capsule wall bistratose, and the presence of a dioecious condition.

The name appeared as *Hyalolepidozia microphylla* R. M. Schuster, Nova Hedwigia Beih. 118: 387, f. 155, 156. 2000, nom. nud., sine descr. Latin.

**22. *Kurzia helophila*** R. M. Schuster var. ***flaccida*** R. M. Schuster ex J. J. Engel, var. nov. TYPE: New Zealand. South Island: Fiordland Nat. Park, track

from Lake Mackenzie to Harris Saddle, *R. M. Schuster 67-3908* (holotype, Hb. Schuster not seen).

Folia usque 0.4–0.55 partem folii quadrifida; discus per proceritatem 9 ad 11(12) cellulorum distinctus; cellulae laminares folii quoad magnitudinem ex base foliari usque ad dimidia basalia loborum subaequantes; cellulae corticales in axe principali usque ad series 16 attingentes.

Stem of main axis with cortical cells in up to 16 rows. Leaves quadrifid to 0.4–0.55; disc 9–11(12) cells high; cells of leaf lamina subequal in size from base into basal halves of lobes.

The name initially appeared as *Kurzia helophila* R. M. Schuster var. *flaccida* R. M. Schuster, *Nova Hedwigia* Beih. 118: 259. 2000, nom. nud.

#### JUNGERMANNIACEAE REICHENBACH

**23. *Lophozia monoica*** (Hodgson) J. J. Engel, comb. nov. Basionym: *Metahygrobiella monoica* Hodgson, *Trans. Roy. Soc. New Zealand, Bot.* 3: 76. 1965. TYPE: New Zealand. South Island: Fiordland, mtns. above Nancy Sound, 3600 ft., Jan. 1963, *C. J. Burrows s.n.*, hb. *Hodgson 12548* (holotype, MPN).

The species is transferred from *Metahygrobiella* R. M. Schuster to *Lophozia* (Dumortier) Dumortier on the basis of the presence of leaves with succubous insertion and orientation, stem cortical cells similar to or a little smaller than the medullary, presence of mycorrhizal fungi in stem cells, leaf cells with distinct trigones, and presence of underleaves. This contrasts with leaf insertion transverse, at least in dorsal sector; stem cortical cells typically larger than the medullary; absence of mycorrhizae in stem cells; leptodermous leaf cells and total absence of trigones; and absence of underleaves as seen in *Metahygrobiella*.

**24. *Andrewsianthus hodgsoniae*** (R. M. Schuster) R. M. Schuster ex J. J. Engel, comb. nov. Basionym: *Cephalolobus hodgsoniae* R. M. Schuster, *Rev. Bryol. Lichénol.* 34: 254. fig. 1. 1966, as “*hodgsonae*.” TYPE: New Zealand. South Island: Mt. Cook Natl. Park, Sealy Range, above Sealy Lakes, ca. 4500–4900 ft., *R. M. & O. Schuster 49702* (holotype, Hb. Schuster not seen).

The genus *Cephalolobus* R. M. Schuster (Schuster, 1966) was accorded subgeneric status under *Andrewsianthus* by Schuster (2002). Three species require transfer to *Andrewsianthus*, the New Zealand endemic *A. hodgsoniae*, and the two species from southern South America indicated below.

**25. *Andrewsianthus scabrellus*** (C. Massalongo) R. M. Schuster ex J. J. Engel, comb. nov. Basionym: *Cephalozia scabrella* C. Massalongo, *Nuovo Giorn. Bot. Ital.* 17: 233, pl. 20, f. 19. 1885. *Sphenolobus scabrellus* (C. Massalongo) Stephani, *Spec. Hep.* 2: 162. 1902. *Cephalolobus scabrellus* (C. Massalongo) R. M. Schuster, *Rev. Bryol. Lichénol.* 34: 250. 1966. TYPE: Argentina. Tierra del Fuego: Isla de los Estados, “Port Cook and Port St. John,” 1882, *C. Spegazzini* (lectotype, designated by Schuster, 1966: 251, G not seen).

The species is restricted to southern South America and the Falkland Islands (see Engel, 1990).

**26. *Andrewsianthus sphenoloboides*** (R. M. Schuster) R. M. Schuster ex J. J. Engel, comb. nov. Basionym: *Cephalolobus sphenoloboides* R. M. Schuster, *Rev. Bryol. Lichénol.* 34: 251. 1966. TYPE: Chile. Isla Desolacion: Puerto Angosto, 28 Mar. 1896, *P. Dusén 177* (holotype, G not seen).

The species is restricted to Tierra del Fuego and the Brunswick Peninsula, Strait of Magellan (see Engel, 1978).

#### SOLENOTOMA MITTEN

The new species below (no. 27), together with the two new combinations in *Solenostoma* made below, are placed in the genus *Solenostoma* rather than *Jungermannia* L. because of the presence of (1) a low perigynium, except in *S. rufiflorum* (Colenso) J. J. Engel, (2) reddish to vinaceous pigmentation, and (3) lateral-intercalary branches (see Schuster, 2002).

**27. *Solenostoma cryptogynum*** R. M. Schuster ex J. J. Engel, sp. nov. TYPE: New Zealand. North Island: South Auckland Prov., Whirinaki Forest Park, rd. to Arahaki Lagoon, SSW of Minginui, 380 m, *J. J. Engel 20730* (holotype, F; isotype, CHR).

*Solenostomati orbiculato similis sed perianthiis juventute lateraliter compressis, aetate in bracteis inclusis, foliis subtransverse dispositis, marginibus eorum dorsalibus ventralibusque non decurrentibus, cellulis medianis 46–61 µm latis × 50–72 µm longis, cellulis in regione distali isodiametricis, 35–46 µm latis longisque distinguenda.*

Plants are similar to *Solenostoma orbiculatum* (Colenso) R. M. Schuster, but differ in perianths that are laterally compressed when young, and included with bracts at maturity; leaves subtransversely oriented, the dorsal and ventral margins not decurrent;

median cells are 46–61  $\mu\text{m}$  wide  $\times$  50–72  $\mu\text{m}$  long, the cells in distal sector are isodiametric, 35–46  $\mu\text{m}$  wide and long.

The name initially appeared as *Solenostoma cryptogynum* R. M. Schuster, Beih. Nova Hedwigia 119: 380, 381, fig. 355: 5–11, 356. 2002, nom. nud., sine descr. Latin.

**28. *Solenostoma hodgsoniae*** (Grolle) J. J. Engel, comb. nov. Basionym: *Jungermannia hodgsoniae* Grolle, Bot. Mag., Tokyo 78: 83. 1965, replaced name for *Lethocolea grandifolia* Berggren, On New Zealand Hep. 1: 26, f. 19. 1898. *Symphyomitra grandifolia* (Berggren) Stephani, Spec. Hep. 2: 107. 1901. *Jungermannia grandifolia* (Berggren) Hodgson, Trans. Roy. Soc. New Zealand 85: 582. 1958 non *J. grandifolia* Hooker f. & Taylor, London J. Bot. 3: 474. 1844 (= *Leptoscyphus horizontalis* (Hooker) Kühnemann). TYPE: New Zealand. South Island: Westland Prov., Teremakau River, betw. Blake's and Kelly's, Mar. 1874, S. Berggren 3140 (lectotype, designated by Vána, 1975: p. 306, LD not seen; duplicate, G).

**29. *Solenostoma rufiflorum*** (Colenso) J. J. Engel, comb. nov. Basionym: *Jungermannia rufiflora* Colenso, Trans. Proc. New Zealand Inst. 18: 237. 1886. TYPE: New Zealand. North Island: Waipawa Co., near Norsewood, 1885, W. Colenso a.1361 (lectotype, designated by Vána, 1975: 302, WELT [cum sporo.]; duplicate, G [cum sporo.]).

#### ADELANTHACEAE (JOERGENSEN) GROLLE

**30. *Pseudomarsupidium aureocinctum*** (R. M. Schuster) J. J. Engel, comb. nov. Basionym: *Adelanthus decipiens* (Hooker) Mitten subsp. *aureocinctus* R. M. Schuster, Phytologia 39: 250. 1978. *Adelanthus aureocinctus* (R. M. Schuster) R. M. Schuster, Nova Hedwigia Beih. 119: 178. 2002. TYPE: Venezuela. Estado Merida: Sierra Nevada de Merida, ca. 2000 m, Schuster & L. Ruiz-Terán 76-1920 (holotype, Hb. Schuster not seen).

The species is endemic to Venezuela; *Pseudomarsupidium piliferum* (Stephani) Herzog ex Grolle occurs in New Zealand, Australia (Tasmania, Victoria, N.S.W.), New Caledonia, southern Chile, Juan Fernandez, Inaccessible Island, and Nightingale Island.

This species and the next are transferred from *Adelanthus* Mitten to *Pseudomarsupidium* on the basis

of the presence of two strong spiniferous teeth at the leaf apex, the stem cortical cells in 1(2) layers of at most moderately thick-walled cells, and the absence of gemmae. In *Adelanthus* leaf apices are variously toothed but not bidentate, stem cortical cells are in 2–3 layers of notably thick-walled cells with reduced lumina, and gemmae are frequently developed.

**31. *Pseudomarsupidium crossii*** (Spruce) J. J. Engel, comb. nov. Basionym: *Adelanthus crossii* Spruce, Proc. Bot. Soc. Edinburgh 15: 404. 1885. TYPE: Colombia. "Prope Popayan," R. Cross (holotype, MANCH not seen).

The species is known only from Colombia and Venezuela.

#### CEPHALOZIACEAE MIGULA

**32. *Cephalozia*** (Dumortier) Dumortier subg. ***Eocephalozia*** R. M. Schuster ex J. J. Engel, subg. nov. TYPE: *Cephalozia badia* (Gottsche) Stephani.

Plantae plerumque quoad colorem rubrescentes vel brunnescentes; rami et frullaniformes et ventraliter intercalares, ramis lateraliter intercalaribus nullis; folia dorsaliter ad linea media caulis inserta; gemmae semper nullae; gynoecia in caulibus longis vel ramis ventraliter intercalaribus disposita.

Plants usually with reddish or brownish pigments; branches of *Frullania* and ventral-intercalary types, with lateral-intercalary branches lacking; leaves inserted to stem midline dorsally; gemmae always lacking. Gynoecia on long shoots or short ventral-intercalary branches.

The subgenus contains *Cephalozia badia* of the South Sandwich Islands, South Orkney Islands, South Shetland Islands, west Antarctic Peninsula, South Georgia, Falkland Islands, southern South America, and New Zealand; *C. schusteriana* J. J. Engel and *C. pachygyna* R. M. Schuster ex J. J. Engel of New Zealand and *C. chilensis* (J. J. Engel & R. M. Schuster) R. M. Schuster of southern South America.

**33. *Cephalozia austrigena*** R. M. Schuster ex J. J. Engel, sp. nov. TYPE: New Zealand. South Island: Mt. Aspiring Natl. Park, Mt. Brewster, NE of Haast River, ca. 4200 ft., R. M. Schuster 67-451d (holotype, Hb. Schuster not seen).

Insertio folii usque ad prope lineam medianam caulis non extensa, zona continua cellularum corticalium efoliata praesenti; plantae sub sole habitantes colore vivide vinaceo vel carmineo tingentes; caulis hyalodermidem formans cellulis corticalibus dorsalibus lateralibusque valde inflatis multum

maioribus quam cellulis medullae ornatam; gemmae praesentes; lobi folii ad basem latitudine e cellulis 4 ad 5 composita; gynoecia in axibus quoad longitudinem variabilibus, aliquae in ramos ventrales breves disposita.

Plants (in sun) intense vinaceous to carmine; stem with a hyaloderm, the dorsal and lateral cortical cells strongly inflated, much larger than medullary cells; leaves with insertion not extending to near stem midline, a continuous band of cortical cells present and leaf-free; leaf lobes 4–5 cells wide at base; gemmae present. Gynoecia on axes of variable length, some on short ventral branches.

The name appeared in the literature as follows: *Cephalozia bicuspidata* (L.) Dumortier subsp. *austri-gena* R. M. Schuster, Hep. Anthoc. N. Amer. 3: 712. 1974, nom. inval., sine descr. Latin. *Cephalozia austrigena* R. M. Schuster, Nova Hedwigia Beih. 119: 29, f. 222. 2002, nom. inval., typ. et herb. non. cit.

The species, endemic to New Zealand, is raised to the species rank to distinguish it from *Cephalozia bicuspidata*; it belongs to subgenus *Cephalozia*.

**34. *Cephalozia schusteriana*** J. J. Engel, sp. nov. TYPE: New Zealand. South Island: Canterbury Prov., Arthur's Pass Natl. Park, Scotts Track to Avalanche Peak, W of town of Arthur's Pass, 1370–1430 m, *J. J. Engel 22067*, cum perianths + male (holotype, F; isotype, CHR).

Plantae sub sole habitantes brunneae vel purpurascens; cellulae corticales caulis in series 11 ad 13 dispositae, plusminusve parietibus firmis, leviter vel moderatim maiores quam cellulae medullares; insertio folii dorsaliter usque ad lineam medianam caulis extensa; amphigastria in caulibus sterilibus in locis discretis effecta, magna; gemmae nullae; os perianthii ciliolatum, dentibus numerosis brevibus liberis e cellulis (1)2–4 elongatis (2–4.5:1) compositis armatum; basis perianthii 1- ad 2-stratosa.

Plants (in sun) brown to purplish; stem cortical cells in 11–13 rows, ± firm-walled, slightly to moderately larger than those of the medulla; leaf insertion extending to stem midline dorsally; underleaves locally developed on sterile shoots, large; gemmae lacking. Perianth mouth ciliolate with numerous short, free teeth composed of (1)2–4 elongated cells (2–4.5:1); perianth base 1- to 2-stratose.

This species appears to be the same as “*Cephalozia ciliolata*,” which is twice mentioned by Schuster (2002), once in the key (p. 25) and again in text (p. 29). However, since there is no description, illustration, or citation of a specimen in Schuster (2002), I cannot be certain of the identity of this manuscript name.

**35. *Cephalozia pachygyna*** R. M. Schuster ex J. J. Engel, sp. nov. TYPE: New Zealand. South

Island: Fiordland, *R. M. Schuster 84-138* (holotype, Hb. Schuster not seen).

Plantae sub sole habitantes brunneae vel purpurascens; insertio folii dorsaliter usque ad lineam medianam caulis extensa; cellulae corticales caulis in 12 ad 13 series dispositae, tantum parum maiores quam cellulae medullares; lobi folii ad basem quoad latitudinem e 8 ad 10 cellulis compositi, in cellulam singulam vel in series uniseriatis e 2 cellulis compositas terminantes, cellulis apicalibus leniter longioribus quam latioribus; amphigastria in caulibus sterilibus nulla; reproductio asexualis nulla; plantae autoicae; bractae usque ad ca. 0.35 partem longitudinis bilobae; os perianthii crenulatum cellulis parum elongatis (usque 2:1); basis perianthii 4- ad 6-stratosa.

Plants (in sun) brown to purplish; stem cortical cells in 12–13 rows, only slightly larger than medullary cells; leaves with insertion extending to stem midline dorsally; leaf lobes 8–10 cells wide at base, terminating in a single cell or a uniseriate row of 2 cells, the tip cells slightly longer than wide; underleaves lacking on sterile shoots; asexual reproduction lacking. Plants autoecious; gynoecial bracts bilobed to ca. 0.35; perianth mouth crenulate, with little-elongated cells (to 2:1); perianth base 4- to 6-stratose.

The name appeared in the literature as *Cephalozia pachygyna* R. M. Schuster, Nova Hedwigia Beih. 119: 25, 29, f. 220, 221. 2002, nom. nud.

#### CEPHALOZIELLACEAE DOUIN

**36. *Allisoniella nigra*** (Rodway) R. M. Schuster var. ***acutiloba*** J. J. Engel, var. nov. TYPE: New Zealand. Stewart Island: Bald Cone, *D. Glennly 9317* (holotype, F; isotype, CHR).

Plantae obscure lutescenti-brunneae vel fuscae; folia usque 0.35–0.5 partem folii bifida; lobi ad basem latitudine e cellulis 17 ad 24 composita, subacuti vel plusminusve acuti; status sexualis autoecius.

Plants dark yellowish brown to fuscous; leaves bifid to 0.35–0.5; leaf lobes 17–24 cells wide at the base, subacute to ± acute. Plants autoecious.

The new variety is assigned to subspecies *nigra* as described by Schuster (1971 [1972]).

**37. *Cephaloziella pseudocrassigyna*** R. M. Schuster ex J. J. Engel, sp. nov. TYPE: New Zealand. South Island: Fiordland Natl. Park, Mt. Burns, *R. M. Schuster 84-115* (holotype, Hb. Schuster not seen).

Plantae colorem viridem clarum translucentem lucidum tinctae, in partibus expositis ferrugineae; lobi folii aequantes; perianthium usque ad basem 1-stratosum, obtuse 5-plicatum, ore setuloso e cellulis plerumque 4–5.5:1 liberis ad

apices acuminatos angustos parietibus crassis praeditos composito.

Plants light clear translucent green, with exposed sectors rusty red; leaves with lobes equal. Perianth 1-stratose to base, bluntly 5-plicate, the mouth setulose with cells usually 4–5.5:1, free at their tapered, narrow, thick-walled apices.

The name appeared in the literature as *Cephaloziella pseudocrassigyna* R. M. Schuster, *Nova Hedwigia* 63: 48, f. 1: 12–14, 1996, nom. inval., herb. non cit.

**38. *Cephaloziella varians*** (Gottsche) Stephani var. **subantarctica** (R. M. Schuster) R. M. Schuster ex J. J. Engel, comb. nov. Basionym: *Cephaloziella arctica* Bryhn & Douin var. *subantarctica* R. M. Schuster, *Nova Hedwigia* 22: 197, pl. 15, 1971 [1972]. TYPE: New Zealand, South Island: Otago Prov., Old Man Range, near summit of "Old Man," 5300 ft., *R. M. Schuster 67-515a* (holotype, Hb. Schuster not seen).

The variety *subantarctica* was placed in *Cephaloziella arctica* by Schuster (1971 [1972]), but with placement of that species in the synonymy of *C. varians*, a realignment of variety *subantarctica* is necessary.

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